

WHAT IS CLAIMED IS:

1. A method for vaccinating a human against a human immunodeficiency virus comprising the steps of:

5 selecting an immunogen competent to induce a protective immune response in said human against said human immunodeficiency virus, and

10 administering to said human an effective amount of said immunogen sufficient to induce a sustained cell mediated immune response against said human immunodeficiency virus.

15 2. The method of claim 1 wherein said Immunogen is an attenuated form of human immunodeficiency virus.

20 3. The method of claim 2 wherein said immunogen has been attenuated by removing all or part of the nef gene from the nucleic acid of said human immunodeficiency virus.

25 4. The method of claim 1 wherein said immunogen is a subunit of said human immunodeficiency virus.

30 5. The method of claim 4 wherein said immunogen is a gp120 subunit of said human immunodeficiency virus.

35 6. The method of claim 4 wherein said immunogen is a gp160 subunit of said human immunodeficiency virus.

7. The method of claim 1 wherein said immunogen is an inactivated human immunodeficiency virus.

8. The method of claim 7 wherein said immunogen has been inactivated by removing a sufficient portion of its genetic material so as to render it incapable of replicating.

9. The method of claim 8 wherein the genetic material removed from said human immunodeficiency virus is a portion of a gene coding for a gag nucleocapsid protein.

10. The method of claim 7 wherein said human immunodeficiency virus has been inactivated by exposure to a solution of betapropiolactone.

5 11. The method of claim 1 wherein said immunogen is an infectious form of human immunodeficiency virus administered in a subinfectious amount.

10 12. The method of claim 1 wherein the effective amount of immunogen administered contains between 100 attograms and 20 milligrams of p24 gag antigen.

15 13. The method of claim 2 wherein the effective amount of immunogen administered contains between 10 and 500 femtograms of p24 gag antigen.

20 14. The method of claim 11 wherein the effective amount of immunogen administered contains between 100 attograms and 500 femtograms of p24 gag antigen.

25 15. The method of claim 1 wherein a cell mediated response is determined to be present using a T-Cell proliferation assay if the uptake of thymidine by antigen-stimulated cells is at least four-fold above background.

30 16. The method of claim 1 wherein a cell mediated response is determined to be present using an IL-2 assay if the production of IL-2 by antigen-stimulated cells is at least four-fold above background.

35 17. A method for vaccinating a human against a human immunodeficiency virus comprising the steps of:
selecting an immunogen competent to induce a protective immune response in said human against said human immunodeficiency virus, and
administering an effective amount of said immunogen to said human sufficient to induce a cell mediated

response against said human immunodeficiency virus but below the amount necessary to induce a humoral response.

5 18. A method for vaccinating a human against a mammalian retrovirus comprising the steps of:

selecting an immunogen competent to induce a protective immune response in said mammal against said retrovirus, and

10 administering an effective amount of said immunogen to said mammal sufficient to induce a cell mediated immune response against said retrovirus but below the level necessary to induce a humoral response.

15 19. The method of claim 18 wherein said retrovirus is a simian immunodeficiency virus.

20 20. The method of claim 18 wherein said mammal is a human.

25 21. The method of claim 20 wherein said retrovirus is HTLV-I.

22. The method of claim 20 wherein said retrovirus is HTLV-II.

23. The method of claim 20 wherein said retrovirus is foamy virus.

30 24. A vaccine comprising a therapeutically effective dose of an immunogen capable of eliciting a cell-mediated immune response in a human protective against infection by a human immunodeficiency virus.

35 25. A vaccine comprising a dose of immunogen capable of eliciting a cell-mediated response in a human as measured by a T-cell proliferation assay.